Remarks

In the present response, claims 11-17 and 22-35 are canceled. These claims were subject to a previous restriction. Applicants reserve the right to pursue such claims in a divisional application.

Further, one claim (3) is canceled; two claims (44 and 45) are added; and four claims (1, 18, 38, and 42) are amended. No new matter is added.

I. Claim Rejections: 35 USC § 101

Claims 18, 42, and corresponding dependents are rejected under 35 USC § 101 because the claims are allegedly directed to non-statutory subject matter. In particular, the Office Actions states that the claims merely manipulate an abstract idea or performs a purely mathematical algorithm. Applicants respectfully traverse.

Applicants respond with at least two arguments: First, the claims have practical application and are not directed to a mathematical algorithms or mere abstract ideas. Second, even assuming *arguendo* that the claims do contain a mathematical algorithm, the claims have practical application and do not consist solely of mathematical operations.

Overview of Law: Mathematical Algorithms

The law clearly states that mathematical algorithms can form part of statutory subject matter. The Supreme Court stated:

> Their process admittedly employs a well-known mathematical
> equation, but they do not seek to pre-empt the use of that equation.
> Rather, they seek only to foreclose from others the use of that
> equation in conjunction with all of the other steps in their claimed
> process .... Our earlier opinions lend support to our present
> conclusion that a claim drawn to subject matter otherwise statutory
> does not become nonstatutory simply because it uses a
> mathematical formula, computer program, or digital computer.

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(*Diamond v. Diehr*, 450 U.S. 175 (1981): text omitted from quotation.)

Further, claims define non-statutory processes if they either (1) consist solely of mathematical operations **without** some claimed practical application, or (2) **simply** manipulate abstract ideas **without** some claimed practical application (see MPEP 2106). Stated another way, claims define a statutory process if they are limited to a practical application within the technological arts (see MPEP 2106 or *Diamond v. Diehr*, 450 U.S. 175 at 183-184 (1981)).

Application of Law to Applicants' Claims

Applicants' claims have a practical application in the technological arts since the claims produce a concrete, tangible, and useful result. In other words, the claims recite at least one step or one act that produces something that is concrete, tangible, and useful. By way of illustration only, claim 18 recites a method for storing and retrieving image data that comprises organizing match descriptors in a database. As recited, a target image (for which a match is sought) is received. A determination is made as to whether a close match exists for the target descriptor. If a candidate match is found, then a match descriptor is returned. These recitations show that claim 18 clearly recites a concrete, tangible, and useful result as an output of centers.

Claim 18 thus provides a "real world" value (i.e., organizing match descriptors in a database and returning matches for target descriptors). This real world value is more than a mere idea or concept. Further, the output of claim 18 proves that the claimed process does not consist solely of the manipulation of an abstract idea. By contrast, the claim provides a concrete and tangible result.

Claim 42 also recites at least one step or one act that produces something that is concrete, tangible, and useful. By way of illustration only, claim 42 recites a method for storing and ordering image data that comprises organizing descriptors of images in a database. These recitations show that claim 42 clearly recites a concrete, tangible, and useful result as an output of centers.

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Claim 42 thus provides a "real world" value (i.e., organizing images in a database). This real world value is more than a mere idea or concept. Further, the organization of images in a database proves that the claimed process does not consist solely of the manipulation of an abstract idea. By contrast, the claim provides a concrete and tangible result.

The legal position of the Applicants is clearly supported in MPEP 2106. Further, Applicants respectfully ask the Examiner to review the decision in *AT&T Corp. v. Excel Communications,*, 172 F.3d 1352 at 1358 (Fed. Cir. 1999). The law clearly states: "Only when the claim is devoid of any limitation to a practical application in the technological arts should it be rejected under 35 USC 101" (MPEP 2106: Emphasis added). Applicants have shown that the claims are not devoid of any limitation to a practical application in the technological arts. As noted, claims 18 and 42 recite a real world value (example, organizing images in a database).

Next, Applicants respectfully cite MPEP 2106 to support further their position:

> The applicant is in the best position to explain why an invention is believed useful. Office personnel should therefore focus their efforts on pointing out statements made in the specification that identify all practical applications for the invention. Office personnel should rely on such statements throughout the examination when assessing the invention for compliance with all statutory criteria. An applicant may assert more than one practical application, but **only one is necessary to satisfy the utility requirement.** Office personnel should review the entire disclosure to determine the features necessary to accomplish at least one asserted practical application. (Bold added).

Applicants have provided at least one practical application in each of claims 18 and 42. For at least these reasons, Applicants respectfully request withdraw of this rejection.

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II. Claim Rejections: 35 USC § 103

Claims 1-5, 7, 18 – 21, 36, 39, 42, and 43 are rejected under 35 USC § 103(a) as being unpatentable over USPN 6,754,667 (hereafter Kim) in view of non-patent literature (Derrode) and further in view of USPN 6,598,054 (hereafter Schuetze). Applicants traverse.

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art cited must teach or suggest all the claim limitations. *See* M.P.E.P. § 2143. Applicants assert that the rejection does not satisfy these criteria.

All Elements Not Taught/Suggested

Independent claims 1, 18, and 42 recite numerous limitations that are not taught or suggested in the art of record. By way of example, claim 1 recites:

> wherein the predetermined metric defines a similarity between two
> different match descriptors such that the similarity is a ratio of a
> number of elements common to two sets of match descriptors and
> a total number of unique elements in the two sets of match
> descriptors.

Nowhere does the art of record teach or suggest that a similarity is a ratio of a number of elements common to two sets of match descriptors and a total number of unique elements in the two sets of match descriptors. The Office Action admits that Kim does not teach this recitation (see OA at p. 6). Applicants agree with this admission. The

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Office Action, however, attempts to cure this deficiency with Derrode. Applicants respectfully disagree.

Derrode teaches a very specific formula for determining a distance or similarity between two images. Specifically, Derrode teaches a mathematical Euclidean distance formula to find the distance between to shapes. Applicants respectfully ask the Examiner to review Section 2.3 and corresponding equation (6) of Derrode.

In contrast to Derrode, claim 1 recites an entirely different method for determining a similarity between two images. Specifically, claim 1 recites that the similarity is a ratio of a number of elements common to two sets of match descriptors and a total number of unique elements in the two sets of match descriptors. As noted, Derrode teaches a different mathematical formula, shown in equation (6), to calculate similarity between two images.

The Office Action argues that Derrode teaches the claimed recitation at p. 878, Section 2.1. Applicants respectfully disagree. This section of Derrode teaches how Fourier-Mellin Transform (FMT) is calculated. This section does not even discuss how similarities between images are calculated. Equation (6) of Section 2.3 (see p. 879) in Derrode teaches how similarities are calculated.

For at least these reasons, the art of record does not teach or suggest claim 1. Independent claims 18 and 42 are allowable for similar reasons.

A dependent claim inherits the limitations of a base claim. Thus, for at least the reasons given in connection with independent claims 1, 18, and 42, the dependent claims are also allowable.

No Suggestion or Motivation to Combine References

Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). The mere fact that references *can* be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d. 1430 (Fed. Cir. 1990). Accordingly, to establish a *prima facie* case, the Examiner must

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not only show that the combination includes *all* of the claimed elements, but also a convincing line of reason as to why one of ordinary skill in the art would have found the claimed invention to have been obvious in light of the teachings of the references. *Ex parte Clapp*, 227 U.S.P.Q. 972 (B.P.A.I. 1985). The Examiner must provide *objective evidence*, rather than subjective belief and unknown authority, of the requisite motivation or suggestion to combine or modify the cited references. *In re Lee*, 61 U.S.P.Q.2d. 1430 (Fed. Cir. 2002). Moreover, a statement that the proposed modification would have been "well within the ordinary skill of the art" based on individual knowledge of the claimed elements cannot be relied upon to establish a *prima facie* case of obviousness without some *objective reason to combine* the teachings of the references. *Ex parte Levengood*, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993); *In re Kotzab*, 217 F.3d 1365, 1371, 55 U.S.P.Q.2d. 1313, 1318 (Fed. Cir. 2000); *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 U.S.P.Q.2d. 1161 (Fed. Cir. 1999).

In addition, when prior art references require a selected combination to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gained from the invention itself, i.e., something in the prior art as a whole must suggest the desirability, and thus the obviousness, of making the combination. *Uniroyal Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 U.S.P.Q.2d 1434 (Fed. Cir. 1988). One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

In the present rejection, the Office Action is picking and choosing portions of three different references in an attempt to show all the elements of the claims. First, this combination is an improper piece-meal construction. Second, no desirability exists in the references for such a combination. For example, Kim teaches a specific method known as angular radial transforms (ART) for extracting descriptors. Kim also teaches a specific mathematical equation (see Equation 12 at col. 5, line 50) for finding similarity between images. By contrast, Derrode teaches an entirely different method that uses FMTs for extracting descriptors. Derrode also teaches an entirely different mathematical equation (see p. 879, Equation 6 of Section 2.3) for finding similarity between images. In light of

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these vast differences between Kim and Derrode, no desirability, motivation, or suggestion exists for combining these references.

For at least these reasons, the art of record does not teach or suggest the claims. Applicants respectfully ask the Examiner to withdraw the rejection since a *prima facie* case of obvious has not been established.

III. Claim Rejections: 35 USC § 103 (Claims 8 and 9)

Claims 8 and 9 are rejected under 35 USC § 103(a) as being unpatentable over Kim in view of Derrode, Schuetze, and further in view of USPN 6,751,343 (Ferrell).

Ferrell fails to cure the deficiencies of Kim, Derrode, and Schuetze. For at least the reasons given in connection with claim 1 in Section II, claims 8 and 9 are allowable over Kim in view of Derrode, Schuetze, and Ferrell.

IV. Claim Rejections: 35 USC § 103 (Claim 10)

Claim 10 is rejected under 35 USC § 103(a) as being unpatentable over Kim in view of Derrode, Schuetze, and in further in view of Gionis.

Gionis fails to cure the deficiencies of Kim, Derrode, and Schuetze. For at least the reasons given in connection with claim 1 in Section II, claim 10 is allowable over Kim in view of Derrode, Schuetze, and Gionis.

V. Claim Rejections: 35 USC § 103 (Claim 38)

Claim 38 is rejected under 35 USC § 103(a) as being unpatentable over Kim in view of Derrode, Schuetze, and further in view of Broder. Applicants respectfully traverse.

First, the Office Action admits that Kim, Derrode, and Schuetze do not teach the limitations of claim 38 (see OA at p. 16). Applicants agree with this admission. The Office Action, however, attempts to cure this deficiency with Broder. Applicants respectfully disagree.

Broder teaches the mathematical notations of resemblance r(A, B) and containment c(A, B) "given two documents A and B" (see Abstract: emphasis added by Applicants). Broder further states:

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> We view each document as a sequence of tokens. We can take
> tokens to be letters, or words, or lines. From a mathematical point
> of view all what we need is for the set of tokens to be countable.
> (See first paragraph of section 2).

Nowhere does Broder teach or suggest using the mathematical notations for images as recited in claim 38 and independent claim 1. Instead, Broder teaches using such mathematical notations for **documents**. Further, Applicants respectfully submit that no motivation or suggestion exists for using the teachings in Broder with respect to images as recited in elements of claim 1.

For at least these reasons, Kim, Derrode, Schuetze, and Broder do not teach or suggest the elements of claim 38.

Further, Broder fails to cure the deficiencies of Kim, Derrode, Schuetze. Thus, for at least the reasons given in connection with claim 1 in Section II, claim 38 is allowable over Kim, Derrode, Schuetze, and Broder.

VI. New Claims

Applicants submit new claims 44-45. For at least the reasons given in connection with Section V, these claims are allowable over the art of record.

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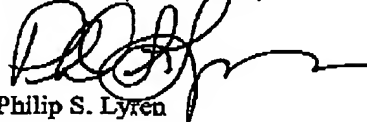Response to OA of 06/17/05

CONCLUSION

In view of the above, Applicants believe all pending claims are in condition for allowance. Allowance of these claims is respectfully requested.

Any inquiry regarding this Amendment and Response should be directed to Philip S. Lyren at Telephone No. (281) 514-8236, Facsimile No. (281) 514-8332. In addition, all correspondence should continue to be directed to the following address:

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CERTIFICATE UNDER 37 C.F.R. 1.8

The undersigned hereby certifies that this paper or papers, as described herein, is being transmitted to the United States Patent and Trademark Office facsimile number 571-273-8300 on this _16_ day of September, 2005.

By _Carrie McKerley_
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